

Safety Impacts of Alcohol and Other Drugs in Construction

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Foreword

The impact of employees' alcohol and other drug (AOD) consumption on workplace safety and performance is an on-going issue for Australian employees, particularly within the construction industry. While most Australian jurisdictions have identified this as a critical safety issue, information is limited regarding the prevalence of AODs in the workplace and there is limited evidential guidance regarding how to effectively and efficiently address the issue.

This project evaluated the use of AODs within the Australian construction industry to reduce the potential for safety and performance impacts and engender a cultural change in the workforce. The project adopted qualitative and quantitative methods to firstly evaluate the extent of general AOD use in the industry. Secondly, to develop an appropriate industry policy in consultation with employers and employees across the infrastructure and building sectors, with the aim that it be adopted nationally at the construction workplace. Finally, to develop an industry-specific cultural change management program and implementation plan through a nationally collaborative approach.

Results from the national evaluation indicate that a proportion of those sampled in the construction sector may be at risk of hazardous alcohol consumption. From a total of 494 respondents, 286 (58%) scored above the cut-off for risky or hazardous alcohol consumption and 43 respondents (15%) scored above the cut-off for being significantly at risk. Only 7% of respondents reported that they might have a problem with their drinking habits. Other drug use was also identified as a major issue. Results support the need for evidence-based, preventative and tailored educational initiatives. Previous work by Biggs et al. (2008) and Fleming et al. (2007) provides a useful framework for creating a robust safety culture in the construction industry to ensure that AOD risk is eliminated from the workplace. Findings from the interviews and input from project partners over the course of the project have provided insightful and invaluable information for the industry to consider in their safety management processes.

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- John Holland;
- Australian Constructors Association;
- Austroads;
- Engineers Australia;
- Australasian Procurement and Construction Council;
- Civil Contractors Federation;
- Master Builders Australia;
- Construction Forestry Mining Engineering Union
- Roads and Maritime Services NSW;
- Australian Workers Union; and
- The Office of the Federal Safety Commissioner (Observer).

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1. Introduction

While it is estimated that 640,700 persons suffered a work-related injury or illness in 2009-2010 (Australian Bureau of Statistics, 2010), and 337 persons lost their lives as a result of a work-related traumatic injury in 2009-2010 in Australia, (Safe Work Australia, 2012¹) very little is known about what proportion of such accidents are directly attributable to the effects of alcohol and other drugs (AOD). This is despite alcohol and drug consumption being relatively prevalent within the Australian community (Holland et al. 2005) and the clear link between such consumption and subsequent declines in cognitive and behavioural performance (Elliot & Shelley, 2006). Nevertheless, the impact of employees' alcohol and drug consumption on workplace safety and performance is an on-going issue for Australian employees, particularly within the construction industry (Berry et al. 2007). This documented concern is reflected in the increasing array of workplace policies being developed to improve construction site safety through addressing the issue of employee impairment. Improving workplace health and safety is particularly

important for this arena given the current size, economic value and expanding nature of the Australian construction industry.

The current research aims to scientifically evaluate the use of AODs within the Australian construction industry in order to reduce the potential for safety and performance impacts and engender a cultural change in the workforce, rendering it unacceptable to arrive at a construction workplace with impaired judgement from drugs and alcohol. A nationally consistent and collaborative approach across the construction workforce, involving government representatives; employers and employees; unions; and other key industry stakeholders and experts will be adopted. An evaluation of the extent and nature of the problem, through a drugs and alcohol consumption and behaviour assessment, will inform the necessary cultural change based on a non-punitive, rehabilitative and educational approach. Previous work by Biggs et al. (2008) and Fleming et al. (2007) provides a significant starting point for framing cultural change in the construction industry.

1.1 AOD in the workplace: the Australian context

In addition to the personal and social costs, the economic costs associated with workplace fatalities and injuries continue to be substantial. For example, the total economic cost of work-related injury in Australia for the 2008-09 financial year is estimated at \$60.6 billion, representing 4.8% of GDP (Safe Work Australia, 2012²). The relationship between alcohol and other drug use and accidents at work is undoubtedly a significant and complex issue. Substance abuse and the potential dangers it poses in the

workplace are well documented with links to absenteeism, presenteeism, interpersonal problems, job turnover, injuries, disciplinary problems and poor job performance and productivity. It is also associated with impaired coordination, judgement and the ability to perceive and respond to hazards (Anderson et al. 2011; Dumas & Hannah, 2008; Gee et al. 2005; Miller et al. 2007; Pidd, 2002; Pidd & Roche, 2009; 2011; Seijts et al. 2002; Wickizer et al. 2004). There may also be increased staff turnover and



associated costs of training replacement workers, increased incidence of lateness for work and machinery damage and litigation costs (Banwell et al. 2006). The prevalence, pattern and nature of alcohol and other drug consumption in the Australian workplace however is not reliably or accurately understood.

The importance of distinguishing between workplace and workforce AOD 'use' when establishing workplace safety and productivity risk is important to highlight (Pidd et al. 2011; Pidd & Roche, 2011). Those who consume AOD away from the workplace and do not return to work until the effects have dissipated are unlikely to be a direct risk, however, consumption during or just prior to work hours is likely to produce a direct safety and/or productivity risk in the workplace. Of the 337 work-related fatalities in 2009-2010, 79 (23%) occurred while travelling to or from work, 42 (12%) as a bystander to someone else's work activity and the remaining 216 (64%) occurred while working (Safe Work Australia, 2012¹). Acknowledging the injuries/fatalities that occur outside of 'working hours' but while travelling

to or from work is important when considering workplace interventions and programs and how they can improve awareness and safety outside of work, in the interests of people's general wellbeing as part of a family and the wider community.

Frone (2006) discusses the effects on morale and productivity of employees who do not use drugs at work. The exposure of individuals who do use drugs at work or arrive at work impaired could have implications for the impact of workplace AOD use on productivity as a broader issue. Based on a National Survey of Workplace Health and Safety, Frone (2009) suggests that a permissive workplace sub-climate may be more broadly related to outcomes among the majority of employees who do not use AOD at work, with workplace safety climate negatively related to workplace safety, positively related to work strain, and negatively related to employee morale. Dale & Livingstone (2010) examined this further by measuring the self-reported burden on workers caused by colleagues who drink heavily. Results provided further support to suggest that Australian workers are commonly affected by other people's



drinking with around one third of workers reporting to have experienced negative effects from their co-workers' drinking, with 3.5% having to work extra hours to cover for others.

There are several studies that offer consumption rates and patterns in various industry and occupational groups. In a study that aimed to assess the alcohol and other drug consumption patterns of adolescent new entrants to the Australian workforce, it was found that more than 40% of apprentices surveyed (building and construction trades) reported cannabis and alcohol patterns that placed them at risk of potential harm. In addition, 19% reported drinking alcohol and 6.7% reported using cannabis during work-related hours (Pidd et al. 2006²). Banwell et al. (2006) investigated AOD use and gambling among ACT workers at 9 major construction and maintenance sites. Questionnaire responses reported high levels of tobacco, cannabis and amphetamine use and 19% reported self-diagnosed alcohol problems, 11.5% gambling problems, and 18% problems in their family life.

A study of recreational drug use among workers in the Port Lincoln mariculture and seafood industries revealed a high rate of cannabis and alcohol use during the shore-based fish farming season. Among the respondents, 50% had used cannabis in their lifetime and 44.2% were using or had used cannabis within the preceding year. A concerning number of workers smoked 'bongs' and consumed alcohol within the 48-hours prior to completing the questionnaire (Evans et al. 2005). Davey et al (2000²) examined the consumption patterns of 4,193 Australian police officers. While 26% of police reported occasionally drinking at work, nearly double (48%) reported drinking with colleagues after work. Rallings et al. (2005) also investigated alcohol consumption and health-related behaviours of Australian police officers. Results indicated a significant increase in the

quantity and frequency of alcohol consumption (and smoking) over time (during initial training before commencing duties and again after 12 months of completing duties). In a study that examined the perceptions of alcohol as a problem in the Australian state railway workplace, Zinkiewicz et al. (2000) found that 13% of those sampled reported having seen an alcohol-related accident. Eighty four per cent felt that alcohol affected the railway workplace, with absenteeism and health being the most frequently reported problems. Those reporting higher drinking frequency were the least likely to see alcohol as a problem for the workplace (Zinkiewicz et al. 2000).

Pidd et al. (2011) conducted a secondary analysis of the 2007 National Drug Strategy Household Survey which found that nearly 9% of workers surveyed usually drank alcohol at work and 0.9% usually used drugs at work. Attending work under the influence of alcohol was more prevalent (5.6%) than attending work under the influence of drugs (2.0%) and significantly more likely among young, male, never married workers with no dependent children. High-risk industries included hospitality, construction, financial services, tradespersons and unskilled workers. Based on data from the National Occupational Health and Safety Commission's second Work-Related Traumatic Fatalities Study, alcohol was a contributing factor in an estimated 4% of work-related fatalities and drugs estimated to contribute to 2% of work-related fatalities (Work-related Fatalities Study Team, 1998).

While useful, such industry-specific information is limited for a number of reasons (including sample size and use of specific groups, when they were conducted and the amount of time that has elapsed since the research was conducted and methodological factors such as measurement variation). Such factors limit the degree to which these findings can be generalised

across industries and the wider workforce (Pidd & Roche, 2011) and have clear implications for the development of effective programs. Each of the studies do, however, highlight the significant health and safety implications of AOD use in the workplace and the need for further investigation and development of industry-specific, tailored prevention and rehabilitation strategies.

The workplace is an important setting for intervention and prevention strategies concerning AOD related harm (Pidd & Roche, 2009). Most people who engage in harmful AOD use are employed and spend a substantial amount of time at work. This provides convenient access and exposure to a large number of people who otherwise may not seek assistance. Employers

also have substantial influence over employee work-related behaviour, particularly those related to safety and productivity and industrial relations, and legislation exists that can incorporate AOD related issues. Furthermore, safety messages related to consumption levels and harm minimisation are likely to extend outside of the workplace into the wider community (Pidd & Roche, 2009).

For a comprehensive overview, please see: Cercarelli, R., Allsop, S., Evans, M.E., & Velandar, F. (2012). Reducing alcohol-related harm in the workplace (An evidence review: full report), Victorian Health Promotion Foundation, Melbourne, Australia.

1.2 Australian construction industry

In 2009-2010, the third highest number of fatalities occurred in the construction industry with 39 deaths (18% of all worker fatalities). This was third to the transport, postage and warehousing industry (51 deaths) and the agriculture, forestry and fishing industry (42 deaths), over the same period. Together, these three industries accounted for 61% of all worker fatalities in that year (Safe Work Australia, 2012¹).

Anecdotal evidence from the infrastructure and building sectors highlights issues of drugs and alcohol and its association with safety risk on construction sites. The construction industry is a high-risk industry for work-related death, injury and illness (Choudhry et al. 2009; Kines et al. 2010; Laitinen & Paivarinta 2010; Lingard et al. 2009). It involves people working in a dynamic and ever changing environment. Hazards and risks change frequently on a site as construction work progresses and as workers move from project to

project. A large majority of the industry's workforce is employed by sub-contractors who undertake work on many different sites, managed by different contractors, and often within different sectors of the industry (Laitinen & Paivarinta, 2010).

Until now, there has been no clear evidence on the prevalence and risk of general AOD use among Australian construction workers. While most workplaces maintain an AOD policy and associated procedures, questions remain as to what is the best approach for the construction sector. There is also uncertainty regarding where the responsibility for addressing these issues lies (whether it be government, employers and workers' unions) and where individual responsibility ends and collective responsibility begins. A call for innovations in construction site safety management and a general shift away from the traditional secondary prevention approach is needed.



1.3 Past research in the industry

The current study builds on the credibility and networks developed through the CRC for Construction Innovation's landmark achievements in safety including the Construction Safety Competency Framework (Dingsdag et al. 2006); Guide to Best Practice for Safer Construction (Fleming et al. 2007); A Practical Guide to Safety Leadership (Biggs et al. 2008); and the Safety Effectiveness Indicators (Biggs et al. 2009; 2010; Cipolla et al. 2009).

Cipolla et al. (2005) discuss the significant role that both management and leadership have in determining the quality of a safety culture. A series of focus groups at 11 construction contractors in Australia revealed that project managers are in an important position to effectively lead safety behaviours, and in driving a positive site safety culture. They also highlight the strong role that safety knowledge, communication and interpersonal style have in determining the quality of their safety leadership. The importance of leadership style, communication and workplace collaboration in influencing the ability of organisations to develop and maintain a positive safety culture are also emphasised by Biggs et al. (2005¹). Dingsdag et al. (2008) further this by identifying, through a survey of site-based workers, the top four influential positions within the Australian construction industry in determining site safety. These were: site OH&S advisor, foreman/supervisor, union representatives/stewards, and the workers themselves. OHS training and education was ranked highly by respondents as a perceived required activity to making a workplace safer. They concluded that by targeting specific positions and identifying key skills, abilities and behaviours which will lead to a positive safety culture, construction companies can improve the efficiency of training and maximise performance (Dingsdag et al. 2008).

Biggs et al. (2005²) describe the transitory nature of work within the construction industry that can hinder an organisation's attempts to develop and maintain a good safety culture. They discuss the need for a framework to facilitate the formation of a good safety culture across the construction industry as a whole. The development and application of a system of nationally standardised and accepted competencies to those in key safety roles within the industry are predicted to positively influence site safety culture. Specifically, by encouraging organisations to integrate these competencies into their existing HRM processes, it should be possible to 1) educate the industry as to best practice in safety culture management, 2) provide a safety culture management system that allows a good safety culture to be built quickly on new projects, 3) ensure a standard level of competency within the workforce to allow for ease of movement of workers between sites and contractors, and 4) improve safety culture and, in turn, potentially improve on-site safety.

In a recent study by Zou (2011) the safety management programs of 5 construction companies in the USA, Australia and Hong Kong (including John Holland's *Zero Harm Program* and Lend Lease's *Incident and Injury Free Program*) were reviewed. In all cases, seven program elements were found: 1) the programs were focused on shaping employees' beliefs, attitudes and commitment to achieve safe behaviour on construction sites, 2) programs were based on the belief that all incidents and injuries are preventable and unacceptable, 3) there was a strong commitment to safety among top management, 4) the programs extended safety management issues to the entire supply chain and involved all stakeholders, 5) safety risk management systems were in place to identify, assess, and respond to on-site hazards, 6) clear authority and

accountability for safety were established and safe behaviour rewarded; and 7) a safety knowledge database was established to capture lessons learned. Such a holistic strategy, as seen in these organisations, is argued to lead to positive safety behaviour and ultimately to a strong safety culture.

In their review, Charles et al. (2007) report that partnerships between those involved in the industry are essential to enhancing construction OHS performance. Specifically, that 'clients' should assume a more prominent role in driving safety by setting safety objectives, selecting 'safe' contractors and participating in safety management during construction. Furthermore, the embedding of five principles into safety and risk management initiatives are advocated: transparency, rationality, accountability, targets and outcomes, and consistency and cost benefit proportionality. With particular reference to the construction industry, Kines et al. (2010) point out that the industry is largely 'reactive' in its approach to risk management, waiting until after accidents occur, rather than taking a proactive approach. They argue for the need to supplement negative and reactive feedback/measures such as accident statistics with positive and proactive feedback such as safety statistics. In their study

that examined the effect of leader-based verbal safety communication on construction site safety, a significant and lasting positive effect was seen after feedback-based coaching of construction site foremen to include safety in their daily verbal exchanges with workers.

Age and other demographic characteristics of the workforce are also important factors to consider, in terms of both the use and consumption patterns seen in various demographic profiles, and also the needs and most effective ways of communicating with/targeting such high-risk groups. In their evaluation, Doumas & Hannah (2008) provide support for the use of web-based feedback as a standalone alcohol prevention program for young adults in the workplace. These findings highlight the importance of addressing the needs of young adults in the workplace who represent a high-risk population for heavy drinking, and tailoring the program to suit those needs. In their systematic review that included the above study by Doumas & Hannah (2008), Tait & Christensen (2010) concluded that web-based interventions, targeting alcohol-related problems, have an effect equivalent to a brief in-person intervention but with the advantage that they can be delivered to more of the target population.

1.4 The role of workplace and safety culture

Almost universal across the Australian construction industry is the adoption of the theoretical construct of organisational safety culture (Glendon, 2003; Guldenmund, 2000; Reason, 2000). Culture – the shared and learned norms, values and practices that distinguish social groups – plays an important role in defining and influencing consumption patterns and related problems. Such an approach extends the notion of social learning and proposes that drinking is

a learned behaviour within the cultural context of a social group and can be functional or dysfunctional (Pidd et al. 2006¹).

The workplace is a distinct cultural environment and an understanding of such is essential for minimising the risk of problem drinking among workers (Pidd et al. 2006¹). When considering predominant pathways to create behavioural change in the workplace, there are two main pathways to ensure compliance: (1) the extrinsic



pathway, governed by systems and rules with rewards and punishments; and (2) the intrinsic pathway, establishing voluntary compliance via individual commitment to safety (Glendon, 2003). For example, in the mining industry, the extrinsic pathway with a legislative framework governing mining operations and the implementation of AOD policy and programs has resulted in a heavy focus on testing. However, within the construction industry across Australia, there is generally not as extensive or explicit AOD workplace legislation, and there is also wide variability between organisations, sites and practices. In general, the construction industry relies heavily on an educative approach built around the intrinsic motivation of individuals to operate safely when it comes to AOD use (Guldenmund, 2000; Sully, 2001).

Workplace cultures are not uniform; they can exist at different workplaces, for different reasons and take different forms. In general, a workplace culture of alcohol can be defined as the learned and shared norms that transmit information to workers about the benefits of alcohol use, the workplace tradition of use, the expectations of use, and the tolerance and support of use (Pidd et al. 2006¹). Group solidarity, job identity, age, conditions of the job that result in work stress, and occupations where team work is an important part of work have all been identified as factors that can lead to occupational drinking subcultures (Pidd et al. 2006¹). Within these subcultures, drinking becomes normative behaviour that is interactive with the overall organisational culture of the workplace (Pidd et al. 2006¹). Obst et al. (2001) followed a group of Australian police recruits through their first 12 months of training. Results indicated that recruits were introduced into a culture of alcohol and that their risk of harm from alcohol consumption (assessed using the AUDIT) increased as their training progressed, thus impacting their consumption patterns. Anderson et al. (2011) report the results of a study that found

that drinking climate and individual job stress were negatively associated with work group cohesion. This drinking climate, combined with low cohesion resulted in increased vulnerability for job stress, job withdrawal, health problems and performance (work accidents and absences).

Pidd et al. (2006¹) describe that “*while there are different theoretical explanations of the way workplace factors impact on the consumption patterns of workers, a unifying and consistent explanation is workplace culture*”. They further this by explaining that “*the workplace is a distinct cultural environment within the larger community that can either support or inhibit the development of problem drinking among workers*” (p.5). The construct is used to describe the values, norms, attitudes and beliefs that are held collectively towards safety within an organisation (Biggs et al. 2005¹; Cipolla et al. 2005; Dingsdag et al. 2008). Mohamed (2002) demonstrated, in a study conducted within the Australian construction industry, that a positive safety climate was significantly associated with observed safe work





behaviour. Using structural equation modelling, the study found that organisational climate predicts safety climate, safety climate influences both safety knowledge and safety motivation, and that safety knowledge and safety motivation predict safety compliance and safety participation. Anderson et al. (2011) highlight three other ways that the workplace can influence workers (as well as those who do not drink): the perceived physical availability of alcohol at work, including the ease of obtaining and using alcohol during work hours/on breaks; through descriptive norms or the extent to which members of an individual's workplace social network use alcohol or work while impaired by alcohol; and through injunctive norms or the extent to which members of an individual's workplace social network approve of working under the influence of alcohol.

Pidd et al. (2006¹) explain that due to the large amount of time workers spend together, quite often significant social relationships develop, some of which extend off the job, leading to workplace drinking networks that may establish and maintain norms for alcohol use. Such social

networks are a particularly important component of workplace cultures. Further, the existence of workplace subcultures, whereby workers share a common identity and form distinctive beliefs about drinking, informally define appropriate and expected behaviours in certain circumstances (Pidd et al. 2006¹). Pidd (2004) examined the role of training transfer, that is, the degree to which the knowledge, skills and attitudes gained in the training context are applied, generalised and maintained over time in the job context (p.275). In this study that evaluated a workplace drug and alcohol training programme for building trade apprentices, results confirmed that the impact of workplace social support on training transfer was influenced by the extent to which trainees identified with workplace groups that were the source of this support. The study supports the need to focus on the personal and situational factors that may interact to influence learning and transfer. Such findings suggest that advances in workplace safety initiatives can be achieved through educating employees and managers about their workplace health and safety responsibilities.



2. The current study

This study is of major significance for Australia within the context of harmonisation of industrial legislation in occupational health and safety, and Federal and State Government investment to improve workplace safety and overall population health. The Federal Government has committed to improvements in construction worker safety and will enable more productive delivery of the major economic and health benefits that will arise, in addition to the benefits of reducing the costs of injuries and deaths to workers. As well as enhancing safety outcomes for construction workers, it is anticipated that the project, through an educational and web-based support intervention, would lead to a reduction in the economic, health and social costs associated with injuries to workers, not only within the partner organisation and the industry as a whole, but also in other industrial sectors as information and intervention programs developed in this project will be applicable across the workforce. A reduction in the social and economic cost to the families of injured workers is also anticipated. Importantly, it is anticipated that the project will result in an overall enhancement of the internal safety culture within the construction industry. It addresses the National Research Priority of ‘Promoting and maintaining good health’ by developing methods to improve the safety and well health of construction workers. This project will fundamentally contribute to a greater understanding of AOD use in the

Australian infrastructure and building industry and, critically, bring together the employer and employee groups nationally. Never before has this level of collaboration been possible at a national level, and the expected outcome has never been more needed as the nation moves to harmonise industrial legislation and occupational health and safety practice to provide optimum safeguards for the national workforce.

It is proposed that the development of such initiatives should firstly be grounded in an accurate understanding of the aetiology, impact and consequences of AOD within the construction workplace. This should then be followed by the development and implementation of tailored and effective interventions designed to specifically target the extent and severity of the problem within the cultural as well as operating context of the construction industry. It is argued that developing a nationally consistent, contemporary and collaborative approach across the construction workforce that involves employers and employees; clients, contractors and sub-contractors is needed to engender a cultural change in the construction workforce. Such an approach may take a similar form to the on-going initiative in securing a cultural change to drink-driving in our society where peer intervention and support is encouraged and appears integral to maintaining such change (Ferguson et al. 2001).

3. Method: National assessment of the use of AOD

This project was approved by the QUT Human Research Ethics Committee and led by an Academic Project Leader (Prof Herbert Biggs at QUT) in partnership with an Industry Project Leader (Lea Slade) from John Holland. The project team collaborated with academic leaders

and experts in applied research in the area and was guided strategically by a National Industry Steering Committee with membership comprising representatives from key government, industry and union groups.

3.1 Participants

A survey method was adopted to gain a quantitative assessment of the general use of AOD in the Australian construction workforce. The survey (described below) was distributed to approximately 500 employees at selected construction sites across Australia. Operational sites were selected by the Industry Project Leader, in consultation with the respective regional and

safety management team. All employees at the selected sites and corporate headquarters were invited to participate. In addition to the survey, semi-structured interviews were conducted to gain some qualitative insights into the safety impacts of AOD in the workplace. Interview numbers were dependent on the availability of employees on the particular day of each site visit.

3.2 Measures

The World Health Organisation Alcohol Use Disorders Identification Test (AUDIT) was used. The AUDIT, while originally designed for use with clinical populations, has been widely used and validated in a variety of populations and contexts, including the workplace (Davey et al. 2000¹; Davey et al. 2000²; Donovan et al. 2006; Hallett et al. 2012; Lennings et al. 1997; Neumann et al. 2009; Younga & Maysona, 2010). There are 10 items on the AUDIT which are classified into three domains. The first domain (Q1-3) measures the quantity and frequency of alcohol consumption and screens for possible risk of hazardous consumption. The second domain (Q4-6) examines abnormal drinking behaviour, which may indicate early or established alcohol dependence. The third domain

(Q7-10) probes for negative consequences related to alcohol consumption. Each question is scored from 0 to 4, with a cumulative range of 0-40. A total AUDIT score of 8-15 indicates a risk of harmful consumption and is most appropriate for simple advice focused on the reduction of hazardous drinking. A total AUDIT score of 16 or more indicates a high risk of alcohol problems and suggests the need for brief counseling and continued monitoring. A total AUDIT score of 20 or above warrants further diagnostic evaluation for alcohol dependence. Although these thresholds were established on the basis of a study on a clinical population, they have also been widely used and validated in non-clinical populations, including those listed above (Babor et al. 2001).



Four additional questions were developed by the research team for the purpose of this study and were included in the survey. These relate to readiness to change (e.g. “do you think that you presently have a problem with drinking” and “in the next 3 months, how difficult would you find it to cut down or stop drinking?”) and ‘other drug’ consumption (e.g. “when have you most recently used marijuana/cannabis” and “when have you most recently used ecstasy or meth/amphetamine type substances”). Demographic details were also included in the survey.

3.3 Procedure

Corporate headquarters and operational sites of the industry partner organisation were visited to distribute the AUDIT survey and conduct structured interviews with both management and employees. The research team worked closely with the relevant operational site and safety managers in order to access employees most effectively on each site. The AUDIT survey was distributed in hard copy to employees during their breaks along with a Participant Information Sheet and plain envelope to seal the completed

Structured interviews were also conducted across a number of roles within the company to identify major issues and themes. Interview questions centered on perceptions towards AOD use in the workplace (including perceived prevalence in the industry, how it affects you, your safety, performance and productivity, as well as that of your co-workers) and attitudes and perceptions towards existing AOD workplace policies (including knowledge of, perceived effectiveness and attitudes towards them as well as what could be improved).

survey in, before returning to the researcher. All surveys were confidential and anonymous. The researchers clearly communicated to employees, that participation was entirely voluntary, that no names would be recorded and that the data remains with the researchers at the end of the project, stored in a locked office. The interviews took place at both corporate headquarters and operational sites in a private room. Detailed notes were recorded by hand during the interviews and later thematically analysed.

4. Results: National assessment of AOD use

4.1 Participants

Final survey results are based on the completion of 494 surveys. All employees who were provided with a survey, at the selected sites, completed and returned it to the researcher on-site. Surveys were collected across three states (Victoria,

South Australia and Northern Territory). Interviews were conducted with ten employees across several roles in the company. Several less formal conversations were also had with employees on-site. Interview results are presented in Section 6.

4.2 Survey data

The majority of respondents (n=464) were male, with a mean age of 35.7 years (SD=11.4). Most respondents (398) were employees; with the remaining 85 respondents employed as contractors. The survey was distributed across

all roles within the company with the majority of respondents classifying themselves as a tradesperson (155), a labourer (117), a plant operator (68), in an administration or engineering role (53) or as a supervisor (47).

Table 1: Gender of respondents

Gender	N (%)
Male	464 (94)
Female	24 (5)
Missing	6 (1)

Table 2: Job status of respondents

Job status	N (%)
Employee	398 (81)
Contractor	85 (17)
Missing	11 (2)

Table 3: Job role of respondents

Job role	N (%)
Tradesperson	155 (31)
Labourer	117 (24)
Plant operator	68 (14)
Admin/engineering	53 (11)
Supervisor	47 (10)
Team leader	30 (6)
Management	17 (3)
Missing	7 (1)

The World Health Organisation Alcohol Use Disorders Identification Test (AUDIT) was included as part of the survey. Of a possible maximum cumulative score of 40, the 494 respondents recorded a mean score of 9.98. Scores ranged from 0 to 40 with a median score of 9. A total of

286 respondents (58%) scored above the cut-off cumulative score for risky or hazardous alcohol use of ≥ 8 , with 185 respondents (65%) falling into the 8-15 scoring group, 58 respondents (20%) in the 16-19 scoring group and 43 respondents (15%) scoring 20 and above.

Table 4: AUDIT summary results

Mean total score	9.98
Median score	9
Range	0-40
Above the cut off of ≥ 8	286 (58%)
8-15	185 (65%)
16-19	58 (20%)
20+	43 (15%)



Scores between 8 and 15 are most appropriate for simple advice focused on the reduction of hazardous drinking. Scores between 16 and 20 suggest counselling and continued monitoring. Scores of 20 or above clearly warrant further

diagnostic evaluation for alcohol dependence. Subsequent analysis focused on the three domains identified within the AUDIT, as shown in the following table.

Table 5: Mean AUDIT scores for each domain

AUDIT Domain	Mean score (SD)	No. of respondents (and %) who scored at or above the cut off
Domain 1: Consumption Maximum possible score = 12 (scores ≥ 6 indicating a risk of alcohol related harm)	6.17 (SD=3.1)	300 (61%)
Domain 2: Dependency Maximum possible score = 12 (scores ≥ 4 indicating possible alcohol dependence)	1.38 (SD=2.1)	79 (16%)
Domain 3: Alcohol-related problems Any scoring warranting further investigation	2.48 (SD=3.1)	291 (59%)

Table 6: Mean total and domain AUDIT scores by age group

Age group	Domain 1	Domain 2	Domain 3	TOTAL score
16-19 (n=8)	7.0 (SD=2.9)	1.9 (SD=2.5)	4.1 (SD=3.9)	13.0 (SD=8.2)
20-29 (n=174)	6.6 (SD=3.0)	1.7 (SD=2.3)	3.3 (SD=3.6)	11.7 (SD=7.6)
30-39 (n=141)	6.1 (SD=3.0)	1.4 (SD=2.1)	2.5 (SD=2.8)	10.0 (SD=6.8)
40-49 (n=86)	6.1 (SD=3.0)	1.3 (SD=1.9)	1.7 (SD=2.6)	9.0 (SD=6.3)
50-59 (n=45)	5.2 (SD=3.3)	0.8 (SD=1.5)	1.4 (SD=2.0)	7.2 (5.3)
60+ (n=18)	4.3 (SD=3.7)	0.6 (SD=1.5)	0.7 (SD=1.8)	5.7 (SD=5.9)

Four additional questions were included in the survey regarding self-rated dependency and past other drug use:

- 7% of respondents reported that they *either possibly or definitely* had a problem with drinking. A further 4% reported that they were unsure.
- Over the next 3 months, 14% reported that it would be either *fairly difficult, or very difficult* to cut down or stop drinking.
- Of those who scored above the cumulative score for hazardous alcohol use (n=286), 212 respondents (74%) reported that they *do not* have a problem with drinking and 157 respondents (55%) reported that it would be *either very easy or fairly easy* to cut down or stop drinking.
- A total of 292 (59%) respondents had used marijuana/cannabis, with 46 in the last year (15.8%) 24 in the last month (8.2%), 21 in the last week (7.2%) and 32 within the last 24 hours (11.1%).
- A total of 196 (40%) respondents had used ecstasy or meth/amphetamine type substances, with 62 in the last year (31.6%), 23 in the last month (11.7%), 18 in the last week (9.2%) and 9 within the last 24 hours (4.6%).

5. Input from the National Industry Steering Committee

All Steering Committee Members were invited to provide input on behalf of their respective organisations. The following written responses were received.

John Holland

Over the past 2 years I have been involved in the “Safety Impacts of Alcohol and other Drugs in Construction” that has been led by the Sustainable Built Environment National Research Centre. The project was conducted in collaboration with Industry and Union representatives who were focussed on understanding if there is an issue relating to the use of alcohol and drugs within the construction industry, and then on understanding the most appropriate and beneficial ways to address any associated issues. The outcomes will provide a great resource for industry to have a better understanding of issues in relation to alcohol and other drugs as well as a resource to assist with education and support for all – Industry Project Leader, Lea Slade

NSW Roads and Maritime Services

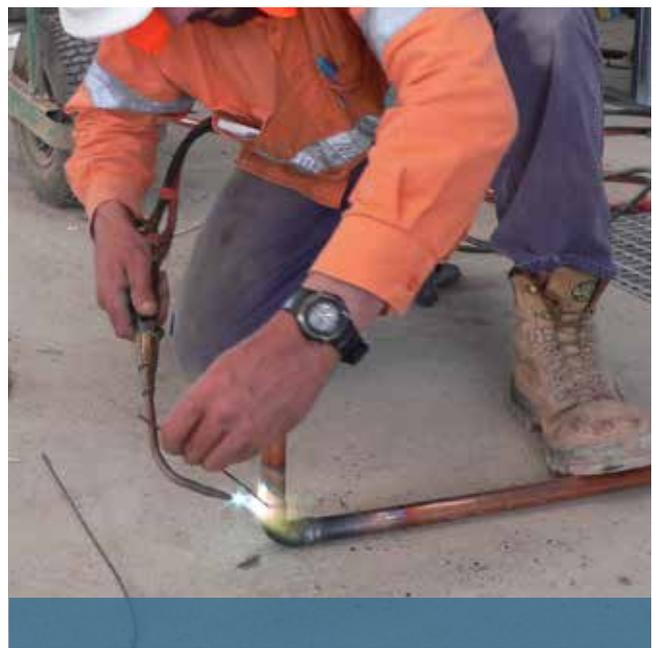
The project identified the general lack of understanding surrounding the performance effects of alcohol and drug use at work. The survey and conclusions provided advice that providing appropriately customised education, rehabilitation and support was effective in reducing the risk of workers coming to work impaired by alcohol and other drugs.

RMS has directly used the findings from the project in its current review of the Drug and Alcohol Policy. The findings from the survey and

project have positively informed the revision of the current D&A Policy. The revised RMS Drug and Alcohol Procedure will focus on education, support and rehabilitation as core elements of its drug and alcohol program.

Master Builders Australia

Master Builders has a demonstrated commitment to improving the building and construction industry’s occupational health and safety performance. This is a key objective of Master Builders’ OHS Policy Blueprint. The Blueprint recognises the importance of addressing the safety impact of alcohol and other drug use in the construction industry. The Blueprint recommends that employers in the industry should develop fitness for work policies, which incorporate a workplace alcohol and other drugs policy. It emphasises that fitness for work policies should





aim at prevention, education, counselling and rehabilitation as part of an organisation's overall occupational health and safety strategy.

The Safety Impacts of Alcohol and Other Drugs in Construction Industry project is a useful addition to the industry's knowledge about alcohol and other drug use by workers in the industry. The impact of drug and alcohol use on workplace safety is not fully known. However, the high levels of use suggest that this presents a serious risk that needs to be managed by the industry through appropriate drug and alcohol policies, supported by testing if a risk assessment identifies this as necessary

Australasian Procurement and Construction Council

The Building Management and Works unit within the Department of Finance does recognise the use of alcohol and other drugs as an Occupational Safety and Health issue if a person's ability to exercise judgement, coordination, motor control, concentration and alertness is affected at the workplace.

Education on the lesser known impacts of alcohol and other drug use in the construction industry [would be a useful addition to what this organisation already has in place].

The Department strongly advocates a safe and responsible working environment for everyone, for both the social and financial benefits it brings.

Office of the Federal Safety Commissioner

Over the years, the Federal Safety Commissioner (FSC) has consistently received feedback from key building and construction industry stakeholders on the issue of alcohol and other drugs (AOD) and the impact it has on WHS on site. Clearly the management of AOD in the workplace is a safety, productivity and cultural issue and should

be addressed consistently with other risks. With this in mind, when approached about this SBEnrc initiative and invited to support the outcomes of this research the FSC was enthusiastic and agreed to participate, particularly in promoting the findings of the research and working together with stakeholders to address related issues.

In 2009, in response to concerns expressed by industry, the FSC hosted an AOD Forum with a view to promoting discussion on the topic, sharing information and experiences and identifying key issues and common themes. Participants agreed that there was a lack of industry data and statistics available to show the impact of AOD in the workplace, but also were unanimous in support for an industry accepted and endorsed framework covering training, education and rehabilitation. The findings and themes of the assessment conducted as part of this SBEnrc initiative are consistent with the discussions that occurred at this forum, and highlight the need for further work to change the culture within the building and construction industry in relation to AOD.

The FSC would like to commend those working on this important issue, and take this opportunity to encourage all industry participants to work together to raise awareness of the impact of AOD on our building and construction sites and improve the management of AOD as a key WHS issue.

Australian Workers Union

Workers in the construction industry are faced with many serious occupational health and safety risks.

The AWU believes that whilst the incidence of workers attending work affected by drugs or alcohol is low, a policy of awareness and education, developed and implemented in consultation and agreement with workers, is the most effective way of addressing the issue.

6. Cultural change management program

This research has adopted an educative, rehabilitative and non-punitive approach to the management of AOD in the construction industry. Using previous work by Fleming et al. (2007) and Biggs et al. (2008) a set of cultural change management guidelines are presented; incorporating the information collected in the interviews. Suggestions for how to implement the guidelines are also provided using input from the interviews and all project partner organisations.

Fleming et al. (2007) identified the following 6 best-practice principles for creating a robust safety culture in the construction industry. They are intended to operate at an industry level as broad values for adoption at both corporate and project levels:

1. Demonstrate safety leadership
2. Promote safety in design
3. Communicate safety information
4. Manage safety risks
5. Continuously improve safety performance
6. Entrench safety principles

These principles are presented in this section to assist with the facilitation of organisational cultural change around AOD use in the construction industry. Supporting evidence collected from the interviews is also presented in italics. The suggestions for implementation are based on findings from the interviews and also input from all project partner organisations who were invited to provide information about what they consider to be important for the effective dissemination of AOD education in the construction workplace.

6.1 Guiding principles

1. Demonstrate safety leadership

Strong safety leadership is critical and involves communicating the importance of safety in all interactions with subordinates, subcontractors, suppliers and other project stakeholders throughout all processes within the life of the construction project (Fleming et al. 2007).

“The importance of management support, maintaining a strong supervisor relationship with a strong commitment to preventing harm caused by AOD.”

“Need to avoid that breakdown [between employees and management]” and go through your supervisor...get to know each other especially with a small crew.”

“Can be the perception that if you ask for help you might lose your job.”

Biggs et al. (2008) provide a more detailed framework that outlines the specific safety leadership behaviours that are considered essential to the development of a positive safety culture. These include: communicate company values, demonstrate leadership by motivating and inspiring others and developing a sense of ‘ownership’, clarify required and expected behaviours, personalise safety outcomes, develop positive safety attitudes, engage and own safety responsibilities and accountabilities, increase hazard/risk awareness and preventative behaviours, improve understanding and effective implementation of safety management



systems and monitor, review and reflect on personal effectiveness.

2. Promote design for safety

Effective safety management at the design stage can minimise risks to the health and safety of people who subsequently construct, occupy and maintain a facility/structure (Fleming et al. 2007). In terms of managing specific risk factors such as that of AOD, strong safety management and promotion from the outset of the project is critical for communicating commitment to safety at subsequent stages of the project and being consistent and transparent with all safety messages across all stakeholders and all stages of the project.

“Consistent communication of policies and expectations right from the start of the project.”

“If everyone’s on the same page it makes everything easier.”

3. Communicate safety information

Communication and consultation are essential to the management of safety and it is important that this starts as early as possible in the project. Open and honest dialogue regarding safety issues should be maintained throughout the life of the project (Fleming et al. 2007).

“While current policies and employer assistance programs were generally seen as effective, there was an overall support for the development of more comprehensive and tailored educational initiatives for employees and contractors within the construction workforce. In particular, the need for preventative programs – rather than focusing on the consequences of AOD use when it could be too late. Specifically identified was the need to educate younger employees about “how to cope” with the lifestyle that can accompany a high-salary, project-to-project, transient type work and “getting in early before we have to deal with the aftermath.”

“Acknowledging the difference between ‘career workers’ and ‘it’s just a job workers’ was identified as an important consideration in terms of how to communicate educational messages most effectively to employees.”

“Consideration of the culture of specific occupational groups was also identified as being important in that the nature and pressures of a job, with specific skills and hazards, can have a major effect on employees’ lives and relationships.”

Messages can be communicated and embedded via company health and safety policy statements, safety posters, tool box talks, ‘walk-arounds’ by management, and regular reinforcement by all ‘non-safety’ managers (Biggs et al. 2008).

4. Manage the risks

The systematic management of safety risks through the elimination or reduction of risks is a requisite for improved safety performance within the construction industry (Fleming et al. 2007). Ensuring that people possess the knowledge, skills and abilities they need to work safely is a critical aspect of good safety management (Fleming et al. 2007).

“Managers come with different levels of experience and need to know how to handle AOD issues – it’s important that they are enabled to manage properly. Also important that everyone is treated the same and policies apply to all.”

“Different supervisors care about different things... some aren’t very comfortable with people who ask for help”. “They have a lot of issues to deal with and responsibilities...they’re not born with all the skills.”

“Links to reduced safety and productivity levels were confirmed by a number of those in safety advisory positions. Overall, there was a general

lack of understanding and knowledge surrounding the physical and psychological effects of AOD use and how these effects might impair performance... No idea about types of drugs, effects and how long it stays in the system". This was despite the overall attitude that the use of AOD is detrimental to workplace productivity and safety. In terms of prevalence, AOD use was perceived (by those in safety roles) as a major issue that is only getting worse, particularly drugs because they are harder to detect 'immediately' as well as the changes that are seen in drug type 'popularity' and the increasing use of synthetics forms of illicit drugs. Prescription medications and other legal stimulants such as energy drinks were also identified by safety staff as a major concern."

"Can't afford for people's perceptions to be inaccurate."

5. Continuously improve safety performance

Safety management should strive for continuous improvement by regularly reviewing safety performance, seeking feedback from project stakeholders, and using the lessons learned to improve performance and to share and promote best practices in the construction industry (Fleming et al. 2007).

"Educating the therapists and counsellors that are made available to employees, about the construction industry was identified in the research as something that could be of great value."

"Can't use direct measures such as accident rates – fortunately these are not high enough. Need to use indirect measures such as near misses and testing work culture and safety in general. i.e. knowledge of safety, support for a policy."

6. Entrench safety principles

Throughout the application of these principles, best safety practices should be entrenched as an integral part of an industry-wide safety

culture. It is important that larger construction organisations work to disseminate safety knowledge and best practice among the small to medium-sized enterprises (SME) with whom they do business (Fleming et al. 2007). Construction organisations should require SME subcontractors to fully participate in project safety management programs, including safety planning, training, monitoring and reporting (Fleming et al. 2007).

"Importance of ensuring that sub-contractors are subject to the same policies and practices that company employees are subject to in their regular practices."

"Negotiate safety at the start when joining with alliance partners – so that practices are consistent and to the same standard."

Biggs et al. (2008) highlight the importance of personalising the impact of risks, and why it is important to the individual and to the project that employees ensure their own safety and health and that of others – that a fatality is not just a statistic but a workmate who has a name, a partner, children, parents and siblings. Emphasising that the industry still has too many avoidable injuries and fatalities and that in some jurisdictions, individuals may be held accountable under reckless conduct (Biggs et al. 2008).



6.2 Suggestions for implementation

The interviews provided various suggestions for how to communicate AOD education to employees at work. These included the need for clear and simple visual hard copy brochures, fact sheets or posters, as well as videos about the physical and psychological effects and impacts of AOD. *“[Resources] need to be simple and short to maintain attention, easily accessed, visual, to the point, easy language.”* *“Information is only really given once they get to counselling – rather than earlier on – need more information on the front line about what effect it has.”* Training sessions (separate from the tool box talks and daily pre-starts) were also identified as an opportunity to focus on a specific safety issue in a certain level of depth *“that would work well, put some food on”*. There was also a positive response to the proposed development of a web-based resource, which would assist those who may find it difficult to seek help or advice about AOD at work. *“The more information the better...then they can make their own decisions.”* A mentoring initiative was also suggested as a way of communicating knowledge, experience and advice to those younger workers who may benefit from a more one-on-one approach with more experienced fellow workers. *“A lot of them do listen.”*

In terms of communicating the results and outputs of this research to people in the construction industry, the following suggestions are made:

- Facilitation of a management/leadership workshop or information session to brief staff on the research, key findings and what the key safety messages or company values are. This can be an opportunity to encourage and motivate leaders to make a strong commitment to a cultural change around AOD in the industry.
- Leaders can also be encouraged to participate in the online AOD education module developed for this project (targeted at management and supervisory staff) and referred to “A Practical Guide to Safety Leadership” by Biggs et al. (2008) for a more detailed framework for implementing a positive safety culture.
- Information about the research including the link to the online resource can be further disseminated to management and supervisory staff via company newsletters, intranet and presentations.
- Communicate the findings from this research to employees throughout the respective organisations via tool box talks, safety posters and other hard copy visual resources, emails, memos, informal conversations and any other communications process that might be available. A ‘package’ of practical information that is tailored to the industry would be useful.
- Advertise and promote in the workplace the use of confidential AOD help or advice contact numbers and/or service providers (both external and those provided internally by the employer) to reduce any existing stigma or fear of seeking extra information or support through the workplace. Communicate the internal assistance options such as the company EAP as well as external sources of assistance.
- Continue the use of current AOD educational resources, particularly the union supported programs such as the “Just Not at Work Mate” educational policy and program.

Based on feedback provided by the project partners, the research team can provide the following training and educational resources to assist with the dissemination of key messages from this research:

- A 1-page summary document outlining key findings and 'take-home' messages.
- A short set of PowerPoint presentation slides outlining key findings and messages.
- A 4-page industry booklet that will outline the project's aims, methodology and findings as well as outlining the benefits to industry – available electronically at www.sbenrc.com.au.
- The online educational module for managers and supervisory staff. The content for this online module was provided by Prof Steve Allsop at the National Drug Research Institute (Curtin University).

7. Conclusions

1. *Is there evidence to suggest that a proportion of the sample is 'at risk'?* **Yes.** As in the general population, a proportion of those sampled in the construction sector appear to be 'at risk' of hazardous alcohol consumption.
2. *Is there evidence to suggest that this risk translates to the workplace?* **No.** Survey results do not tell us about when those in the 'at risk' group are drinking. A proportion of those 'at risk' will consume alcohol in private, in their own time, whereby their behaviour has no relevance to their performance at work. For others, alcohol risk will translate into workplace risk. This evidence does not allow any accurate indication of what this risk might be.
3. *Do these results support the need for mandatory testing?* **No.** Results support the need for evidence-based, comprehensive and tailored responses in the workplace, and in the broad community, so that those who may be 'at risk' are provided with accessible and relevant information and/or help if necessary and any environmental or structural contributors to risk are addressed. Once risk is identified, the next step is to identify factors

that might contribute to risk and then to design specific interventions based on each organisation's/location's need.

4. *What does past research suggest the best strategies are?*

The evidence base is limited but includes:

- Strategies to reduce workplace factors that increase risk (e.g. low levels of supervision; easy access to alcohol; stress; workplace cultures that encourage risky alcohol use);
- Strategies that support low risk use (e.g. investment in safety cultures and systems);
- Online brief interventions for those at risk;
- Initiatives such as 'Not at Work, Mate';
- Peer support programmes; and
- Access to rehabilitative support.

This has been the first known study to scientifically evaluate the use of AODs in the Australian construction industry – to better understand the issue and inform the best educational solutions for improving safety. Results from the national

assessment indicate that as in the general population, a proportion of those sampled in the construction industry may be at risk of hazardous alcohol consumption. As general AOD use does not necessarily translate into workplace AOD use and impairment, these results do not tell us about when those in the 'at risk' group are drinking. A proportion of those 'at risk' will consume alcohol outside of work whereby their behaviour has no relevance to their performance at work. For others, alcohol risk will translate into workplace risk. This evidence does not allow any accurate indication of what this risk might be. Hazardous AOD use is a health issue and the health and wellbeing of the workforce is relevant to the workplace. This research has provided us with some important evidence about the level of risk that people in this industry are putting their health at. From a safety perspective, AOD education and leadership is a proactive approach to ensuring that the risk from AOD is minimised and potential resulting accidents are prevented.

While many in the current sample appear to be at risk of hazardous alcohol consumption, a large proportion of these respondents claimed not to have a drinking problem. Many of these respondents also indicated that it would be fairly easy to cut back or stop their drinking behaviour. These results suggest that those who may be at risk are unaware that a problem may exist, further highlighting the need for educational programs to increase knowledge and awareness of the effects of AOD. Other drug use (both illicit and licit) also remains a huge concern.

Findings from this research support the need for evidence-based, comprehensive and tailored responses in the construction workplace, and in the broad community, so that those who may be 'at risk' are provided with accessible and relevant information and/or help if and when necessary. Previous work by Biggs et al (2008) and Fleming



et al (2007) provide a useful framework for creating a robust safety culture in the construction industry to ensure that AOD risk is eliminated from the workplace. Findings from the interviews and input from project partners over the course of the project have provided insightful and invaluable information for the industry to consider in their safety management processes. Further funding is required to extend and evaluate the outputs of this study, particularly the online educational tool and the development and evaluation of other on-site resources.

This study is of major significance for Australia within the current context of harmonisation of industrial legislation in occupational health and safety, and Federal and State Government investment to improve workplace safety and overall population health. This project will fundamentally contribute to a greater understanding of the impact of AODs in the Australian construction industry within a safety culture framework and, critically, bring together employer and employee groups nationally.

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The Sustainable Built Environment National Research Centre (SBEnc) is the successor to Australia's CRC for Construction Innovation. Established on 1 January 2010, the SBEnc is a key research broker between industry, government and research organisations for the built environment industry.

The SBEnc is continuing to build an enduring value-adding national research and development centre in sustainable infrastructure and building, with significant support from public and private partners around Australia and internationally.

Benefits from SBEnc activities are realised through national, industry and firm-level competitive advantages; market premiums through engagement in the collaborative research and development process; and early adoption of SBEnc outputs. The SBEnc integrates research across the environmental, social and economic sustainability areas in programs titled Greening the Built Environment; Developing Innovation and Safety Cultures; and Driving Productivity through Procurement.

Among the SBEnc's objectives is collaboration across organisational, state and national boundaries to develop a strong and enduring network of built environment research stakeholders and to build value-adding collaborative industry research teams.

SBEnc Core Partners:



Transport
Roads & Maritime
Services



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